

We Claim as Our Invention:

1. An orthopedic device for reinforcing an anatomic joint of a body comprising:

at least one superelastic member;

5 a covering encapsulating said superelastic member;

wherein said superelastic member comprises at least one tightening link that secures the orthopedic device to the body, and at least one spring link comprising an integrated flex region that defines the motion of the anatomic joint;

10 2. The device of claim 1 wherein said spring link comprises at least one loop at the flex region that applies a first resistance when deflected in a first direction and a second resistance, different from the first, when deflected in a second direction;

3. The device of claim 1 further comprising a stop associated with said spring link that limits deflection of the flex region in a first direction and preserves deflection in a second direction different from the first direction;

15 4. The device of claim 1 wherein the device comprises two tightening links interconnected with said spring link such that the spring link limits the angular rotation of said tightening links relative to each other;

20 5. The device of claim 1 wherein said tightening link is deflected, with an external force, into an enlarged configuration for placement and returns towards its resting configuration once the external force is removed;

6. The device of claim 1 wherein said tightening link incorporates a locking mechanism to removably secure the tightening link to the body;

7. An orthopedic device for limiting the motion of an anatomic joint of a body comprising:

25 at least one superelastic member comprising at least two tightening links, one tightening link located on each side of the anatomic joint, and at least two spring links connecting the tightening links;

wherein each tightening link and each spring link is adapted to deflect from a first configuration to a second configuration different from said first configuration in response to an external force, and return towards said first configuration upon reduction or removal of said external force;

5 8. The device of claim 7 further comprising at least one interconnect mechanism securing intersecting regions of said spring links;

9. The device of claim 7 further comprising at least one locking mechanism associated with at least one of said tightening links;

10 wherein said locking mechanism removably secures said tightening link to said body;

10. The device of claim 7 wherein at least one of said spring links further comprises a stop mechanism adapted to limit motion of the joint in a first direction and preserve motion of the joint in a second direction different from the first direction;

11. The device of claim 7 wherein at least one of said spring links is adapted to provide resistance to motion of the anatomy about the joint;

12. An orthopedic device for applying decompression to an anatomic structure of a body comprising:

at least one superelastic member comprising at least two tightening links, and at least one spring link connecting the tightening links and adapted to apply an outward force against the tightening links;

at least one locking mechanism adapted to secure the tightening links to the anatomic structure; and

at least one decompression mechanism associated with said spring link to define the magnitude and the direction of the outward force exerted by said spring link;

25 13. The device of claim 12 wherein said tightening links are integrated with said spring links;

14. The device of claim 12 wherein said spring links are adapted to also apply a directional force against the anatomic structure;

15. The device of claim 12 wherein a plurality of spring links connect said tightening links, and said decompression mechanism is adapted to adjust the lateral
5 separation of said spring links to alter said outward force;

16. The device of claim 12 wherein said decompression mechanism is adapted to adjust the vertical separation of said tightening links to alter said outward force;

17. The device of claim 12 wherein said spring link is adapted to deflect along a second plane, different from said decompression plane, in response to an external force,
10 and return towards its resting configuration once the external force is reduced or removed;

18. The device of claim 12, wherein said at least one superelastic member comprises nickel titanium;

19. The device of claim 12, wherein said at least one superelastic member
15 comprises a single rod of material thermally formed into said tightening links and the at least one spring link;